FOREST INSECT CONDITIONS ON THE SALMON NATIONAL FOREST, 1965

The following is an account of spruce budworm infestations encountered on the Salmon National Forest this year. Because of serious manpower and time limitations we are unable to provide accurate information on the status of other insects this year. Part of the following information was compiled from aerial survey data and part was the result of ground examinations to supplement the aerial findings. In addition, two special evaluation surveys were made on the forest this year: The first was to record defoliation and estimate the population feeding level; the second was to collect egg masses. A comprehensive discussion of the spruce budworm situation follows:

Spruce budworm, Choristoneura fumiferana (Clem.)

The overall extent of spruce budworm damage on the Forest apparently decreased considerably over that of last year. A summary of infested acreage by intensity of damage, as determined by aerial surveys, follows:

Year	Infestation Intensity			
	Light	Medium	Heavy	Total
1964	64,000	320,000	958,000	1,342,000
1965	296,500	77,400	336,000	709,900

Although the above shows that the infestation has been reduced by more than 600,000 acres, we suspect that the actual difference may be somewhat less. Budworm development was unusually slow this year and light feeding activity in some areas may have gone undetected during the earlier flights. In addition, much of the area within the boundaries of the 1964 control project was flown too late to permit full and accurate coverage. Early storms removed many of the defoliated needles and subsequent unfavorable flying weather forced us to end the survey; consequently, most of the northern half of the 1964 control area was not covered. Ground survey reports, however, showed light budworm activity in Hull Creek, Indian Creek, Spring Creek, and Long Tom Creek, and in other drainages north of the Salmon River. More than 260,000 acres of light defoliation were observed during late fall flights within the southern limits of the 1964 project boundary. This was substantiated by supplemental ground surveys.

Coverage elsewhere on the forest was relatively satisfactory. Practically all flights were made during good weather and at times when conditions for observing were optimum.

Based on previous experience, fairly accurate and consistent predictions can be made as to next year's population level and resulting damage, from data based on systematic samples of this year's egg masses and pupae. Samples of Douglas-fir foliage were taken from seven locations within the 1964 control

area, and in ten areas elsewhere on the forest. 1965 egg mass counts and pupal density classes, the respective collection areas, and damage forecasts for 1966 are shown below:

AREA	1965 DEFOLIATION PREDICTED * (%)	1965 DEFOLIATION ACTUAL (%)	1965 COLLECTIONS EGG MASSES (1000 SQ. IN.) (NO.)	1965 COLLECTIONS PUPAL DENSITY (Class)	1966 EXPECTED DEFOLIATION (%)	TREND
1964 Control						
Porphyry Cr.	15-25 low	50-75	2.3	I	15	Static
Meyer Cr.	51-90	75-90	12.2	II	51-90	Inc.
Dahlonega Cr.	15-25 low	25-50	8.9	I	25-50	Inc.
Blackbird Mine	15-25 low	25-50	1.9	I	15	Dec.
Carmen Cr.	15-25 low	25-50	11.7	I	51-90	Inc.
Rabbits Foot	15 low	50-75	0.9	I	15	Static
4th of July Cr.	15-25 low	25-50	1.5	I	15	Dec.
No Control						
McDevitt Cr.	90-100	75-90	22.7	II	90-100	Static
Williams Cr.	51-90	75-90	9.7	I	51-90	Static
Cow Cr.	25-50 low	90-100	6.2	III	51-90	Inc.
Agency Cr.	51-90 low	90-100	23.0	II	90-100	Inc.
Derier Cr.	90-100 high	75-90	28.9	II	90-100	Static
Little Dry Cr.	-	90-100	26.0	II	90-100	-
Timber Cr.	90-100	90-100	50.3	III	90-100	Inc.
Yellow Jacket	25-50	-	7.2	-	25-50	Inc.
Hayden Cr.	51-90	75-90	20.2	II	90-100	Inc.

* Based on 1964 egg mass and pupae samples.

The predictions for 1965 defoliation based on 1964 egg mass counts and pupae classes, were generally conservative. On-the-ground defoliation measurements exceeded predicted defoliation except in two cases where the reverse was true. We do, however, have an idea as to the reason for this consistent difference, and plan to make the necessary adjustments as soon as practical.

Although overall intensity and extent of damage by the budworm decreased this year, continued heavy defoliation in most of the infestation areas can be expected next year. In those areas that have harbored heavy budworm populations, and have undergone repeated heavy defoliation, top kill of the overstory, top kill and limited mortality of the intermediate crown classes, and extensive kill of the understory can be expected. Douglas-fir will suffer the greatest damage. The impact of repeated defoliation on growth loss in these areas is being studied but has not as yet been determined.

Unless natural control factors exert pressure on budworm populations next year, a slight increase in intensity and extent of defoliation can be expected in the south half of the 1964 control area (Panther Creek drainage south of Cobalt) and in all of the drainages east of the North Fork of the Salmon, extending in a southeasterly direction to Carmen Creek. The rather rapid buildup of budworm populations in the 1964 spray area likely resulted from one, or a combination of the following factors: (1) residual budworms not killed by the spray, (2) relatively heavy residual populations left in the protective strips along the streams and in other critical areas not treated, and (3) reinfestation by moth flights from outside of the spray area. The full extent of the buildup, however, will not be known until next year.

_____ Submitted by: _____

Date William H. Klein